Sensory gardens

Hazreena Hussein's research interest is the design of accessible outdoor environments. Here she examines some of the design issues associated with sensory gardens, as identified by both their creators and their users.

> *Sensory gardens cannot be designed without considering the human element. Unlike traditional display gardens that are meant to be observed from a distance, sensory gardens draw the visitor in to touch, smell and actively experience the garden with all senses.*
> – C A Shoemaker

The early research involved undertaking a review of existing literature on sensory gardens. The review revealed a lack of rigorous research on the subject, which made it difficult to identify initial research questions. It was decided that the best approach would be to conduct preliminary site studies, mainly by visiting places that claim to have sensory gardens. Observations of how these gardens are used could be carried out, followed by interviews with teachers and key experts. This fieldwork would support the selection of case studies and help prepare for the interview process, which would take place at the data collection stage.

The Sensory Trust (see box) also contributed views at this stage of the research. An interview was conducted with Jane Stoneham, Director of the Trust and author of the book *Landscape Design for Elderly and Disabled People*. Stoneham stated that a considerable amount of research still needed to take place in order to establish how to meet the needs of older and disabled people. She warned that a great number of assumptions have been made about how disabled people navigate and benefit from an outdoor environment, and that these have not yet been fully tested. She also claimed that sensory gardens have taken an ambiguous direction in the field of landscape architecture, and pointed out the lack of design guidelines for sensory gardens. The design of sensory gardens therefore currently relies on the experience and attitude of designers.

There are two main issues associated with sensory gardens, the first of which concerns the design. Often, a designer's biggest mistake is in presuming that he or she knows what the needs of the users are. For example, while a designer may be aware that water is an important element of a garden – in that it appeals to a user's senses of hearing and touch – in some sensory gardens, the water is not easily accessible, therefore the feature might not benefit all users. Another mistake many designers make is in specifying pathway materials that render paths inaccessible to some users. This excludes certain users from sections of the garden, and may leave them unable to access some of the features. The unnecessary addition of ramps can also be a problem; if a garden's gradient meets the recommendations set out in the design guidance, then generally speaking, a ramp should not be needed. During the research, the pupils' teachers raised concerns about ramp surfaces often being slippery.

The second issue associated with sensory gardens relates to their maintenance. Gardens that fail to be maintained during the years following their creation will decrease in terms of their sensory impact, and therefore will not entice people to visit.

The Sensory Trust
The Sensory Trust was established in 1989, and grew out of a multi-disciplinary consultation involving a network of disability and environmental organisations. The Trust works to promote and implement:

- an inclusive approach to designing and managing outdoor spaces
- richer connections between people and place
- equality of access for everyone, regardless of age, disability or background

More information is available on the Sensory Trust's website.

www.sensorytrust.org.uk

An inaccessible path to significant features in a sensory garden

The research methods

The case study gardens were used as locations for interviews using 'walk-through'. This involves the designer walking through the completed garden and pulling together users' actual and potential experiences in the different parts of the area (see Bechtel and Srivastava, 1978). This was carried out with designers, teachers, and therapists from two schools: the Royal School for the Deaf and Communication Disorders in Cheshire, and The Lyndale School in Wirral.

Any design aspects that might influence or encourage the use of space in the sensory garden were queried. After conducting the interviews, general observation and behavioural mapping were carried out. Behavioural mapping is a commonly used time-sampling technique. At prearranged times, an observer codes the activities and locations of all the people in a space (see Friedman et al, 1978). During this research, certain incidents that were observed were recorded and used as anecdotal evidence, and photographs were taken to provide a visual record of these.

The interview results

The landscape architects of the two schools' gardens agreed on a number of common design aspects that encourage the use of space in a sensory garden. These include:

- general accessibility
- aesthetic value
- maintenance
- planting
- the quality of surfacing equipment
- safety
- the spatial location of the garden

The teachers and therapists at both schools agreed with many of these points, highlighting that accessibility, maintenance, quality of sensory equipment, safety and the spatial location of the garden may greatly encourage the use of space. However, unlike the landscape architects, half of these respondents had no strong views on how the aesthetic value relates to the use of space.

The observation results

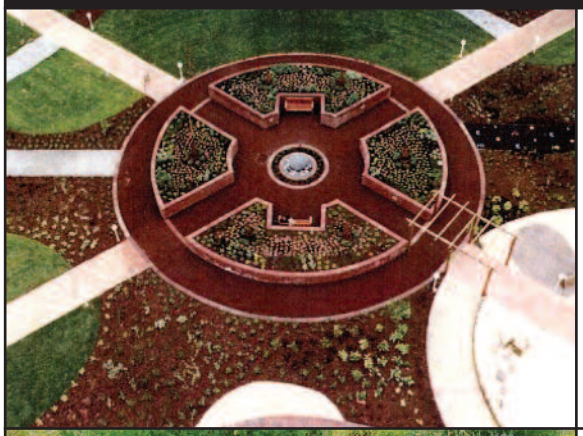
It was surprising to discover that students of both schools use the sensory gardens in all types of weather. For example, on every day of the observation period, one particular student (who is a wheelchair user) and her teaching assistant would use the sensory garden for between 30 minutes and an hour from midday. No matter whether it was a sunny, rainy or windy day, she would be making the most of the sensory garden!

A notable incident took place when a young boy and his teaching assistant were taking a leisurely stroll in the sensory garden. As they reached the boardwalk underneath a shady canopy, the assistant jumped up and grabbed a branch. The boy looked at her, obviously puzzled as to why she had done that. 'I have a surprise for you…are you ready?' she asked, as he held the rope railing with both hands and jumped with obvious excitement. Keeping a good grip of the branch, the assistant shook it hard, causing drops of rainwater to fly from the leaves. The boy was so surprised that he let go of the rope railing, lifted his arms, and turned his face to the sky so he could feel the water falling on it. At one point, he even opened his mouth to taste it. This simple setting enabled the teaching assistant and student to laugh together as they both got wet. It proved the point that sometimes the simplest ideas are the best.

Perception versus reality

There was a notable difference between how the designers, teachers and therapists anticipated users would behave and what was actually recorded during the observation periods. Some of the principal similarities and differences have been summarised in the following tables.

Royal School for the Deaf and Communication Disorders



Credit: Courtesy of Sue Robinson, Stockport Metropolitan Borough Council

Accessibility and variety of pathways
Both sets of results suggested that well-designed and well-planned paths are very important, and would lead to high usage. A good pathway network should provide clear links between school buildings and the gardens, and should enable easy circulation.

A good path network

Water feature at the Water Central Area
Many interviewees thought that planted shrubs around a water feature acted as a barrier between the user and the feature. In practice, though, many users were still able to enjoy this feature, and they spent a lot of time doing so. Interestingly, it was not initially designed to be surrounded by shrubs, but was simply meant to be a smooth, reflective steel dome with water flowing over it. However, the inclusion of shrubs does not seem to have affected the level of usage.

Shrubs around the water feature

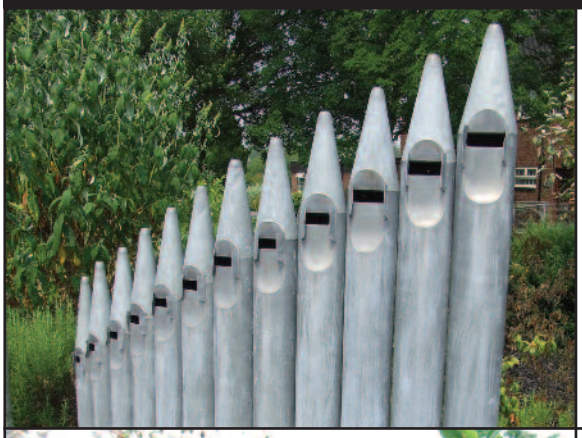
The Exploraway

Exploraway and Vaporised Trail
Both the interviews and the observations suggested that the least used features were the Exploraway and the Vaporised Trail at Green Space One, due to the unsuitability of the surface material for many users.

The landscape architect was not involved at the detailed design and construction stage, and therefore had not envisaged that the Vaporised Trail would be laid with large stone blocks. However, although she assumed that these are difficult for users to negotiate, in reality, some users were seen stepping on and over the blocks as they passed through the garden. Ironically, the Exploraway – so called because the landscape architect originally intended for its surface to be much more bumpy – actually offers less of a challenge than the other path.

The Vaporised Trail

Royal School for the Deaf and Communication Disorders



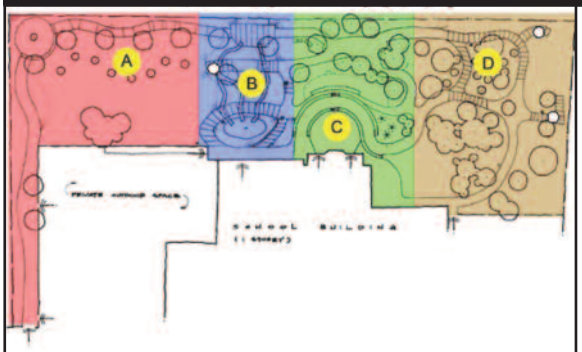
Musical instruments in the Asteroid Arts Garden
The landscape architect predicted that this zone would be the most popular, and the observation results confirmed this to a certain extent. However, the teachers and therapists said they thought the musical instruments were not used as frequently as they could be. They said the instruments were inaccessible, lacked variety and did not motivate users, as some of the equipment – such as the musical pipes – does not make any noise.

The 'musical pipes' that do not make any noise

Raised planters at the Water Central Area
The teachers and therapists stated that the raised planters were inaccessible to the students who were wheelchair users; they thought the width of the planters made it difficult to reach the plants. In contrast, though, during the observation period, students on specially-adapted bicycles were seen touching the moss on this feature as they passed by. In fact, this proved to be the most popular feature in terms of the average time spent there by users.

Students like to feel the moss at raised beds

The Lyndale School



Path network
Both sets of results showed that the spaces/elements that were used the least were the path network and slope. Wheelchair users found their exploration was interrupted by the sudden ending of the path at the Water Garden (zone B). Although many students appreciated the sound stimuli at the end of the boardwalk at the Woodland Garden (zone D), this caused them to linger, creating a bottleneck of users in one area and hampering circulation for those wanting to pass through.

This path network does not allow a steady flow of users

Water feature
The landscape architect and teachers thought that the water feature was the most successful in terms of frequency of use. However, the observation results showed that (compared with other zones in the garden) this feature had the second lowest number of users. This is probably due to the slippery surface at the boardwalk and inaccessible raised beds.

The slippery surface of the boardwalk

Conclusions

The layout of a pathway has a strong bearing on user behaviour and use of space. Where a pathway network links the sensory garden to the rest of the site in an effective manner, it provides users with easy access to the functional, physical elements that are placed along it. Pathway networks that are well thought out will enable many more users to enjoy the benefits of a sensory garden.

This finding echoed research on inclusive parks undertaken by Moore and Cosco (2007). Zones that focus on sensory rather than aesthetic design and features appear to attract the greatest number of users, and these users tend to linger for a longer time here than in other zones.

This research has raised some valuable points concerning the assumptions that many people make about sensory gardens. There was often a stark difference between what the designers and teachers thought would be popular, and what actually worked well in reality. Assumptions about what users enjoy and how they interact with their environment are clearly sometimes very misleading. Before starting a project, designers should visit existing sensory environments to observe how they are actually used, to help them evaluate which features are most successful.

A sensory garden exhibiting a lack of maintenance

The results have shown that even the teachers and therapists – who see their pupils on a daily basis – sometimes make incorrect assumptions. While their comments and opinions are valuable, there is no substitute for observing how users really act. Of course, designers have limited time to sit observing these environments, which brings us to the final point: the need for solid best practice guidance on sensory gardens. Only once we have well-researched, reliable design guidance on these environments will we start to see the standard of sensory gardens raised to a consistently high level.

Hazreena Hussein is a PhD student at Edinburgh College of Art, and Lecturer at the University of Malaya. The research outcomes from her most recent investigations should help to inform the theory and practice of landscape architects when they design future sensory gardens. For more details on her research, contact Hazreena at hazreena.hussein@eca.ac.uk

References

Bechtel, R B and Srivastava, R K (1978) Post occupancy evaluation of housing. Report submitted to the Department of Housing and Urban Development in Craig M Zimring and Janet E Reinzenstein's 'Post occupancy evaluation: An overview'. *Environment and Behavior*, Volume 12, Number 4, December 1980

Friedman, A, Zimring, C and Zube, E (1978) *Environmental design evaluation*, Plenum Press

Heft, H (2001) Perceiver – environment relations. In Gibson et al's *Ecological psychology in context: James Gibson, Roger Barker and the legacy of William James's radical empiricism*, Laurence Erlbaum

Moore, R C and Cosco, N G (2007) What makes a park inclusive and universally designed? A multi-method approach. In Thompson, C W and Travlou, P (eds) *Open space: People space*, Taylor & Francis

Shoemaker, C A (2002) *Interaction by Design: Bringing people and plants together for health and well-being. An international symposium*, Iowa State Press